Silicon Nanowire Fabrication for Detection of Dopamine by UV Nanoimprint Lithography

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The sensitive of nanowires could be to their high surface to volume ratio, and ability for local charge transfers due to the field-effect. We produced 100 nm wide silicon nanowire patterns and developed a sensitive dopamine sensor by the UV assisted imprint lithography method. Dopamine is related with brain diseases such as depression and Parkinson's disease. In consequence different concentrations of dopamine were measured at dopamine concentrations ranging from 10 pM to 100 nM. These results show that the proposed techniques could be applied to biochip field. Acknowledgments : This research was supported by National Nuclear R&D Program through the National Research Foundation of Korea(NRF) funded by the Ministry of Education, Science and Technology (No. 2010-0018194) and by the Original Technology Research Program for Brain Science through the National Research Foundation of Korea(NRF) funded by the Ministry of Education, Science and Technology (2009-0093907). And this research is financially supported by the Ministry of Knowledge Economy(MKE) and Korea Institute for Advancement in Technology (KIAT) through the Workforce Development Program in Strategic.